No. 629,862. Patented Aug. 1, 1899.

W. A. LANGJAHR.

PUNCHING MACHINE.

(Application filed May 20, 1899.)

(No Model.)

Fig. 2.

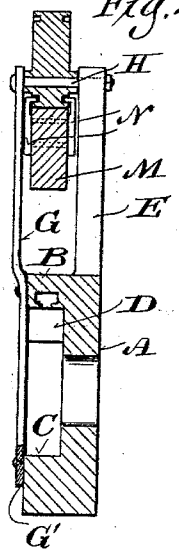


Fig. 1.

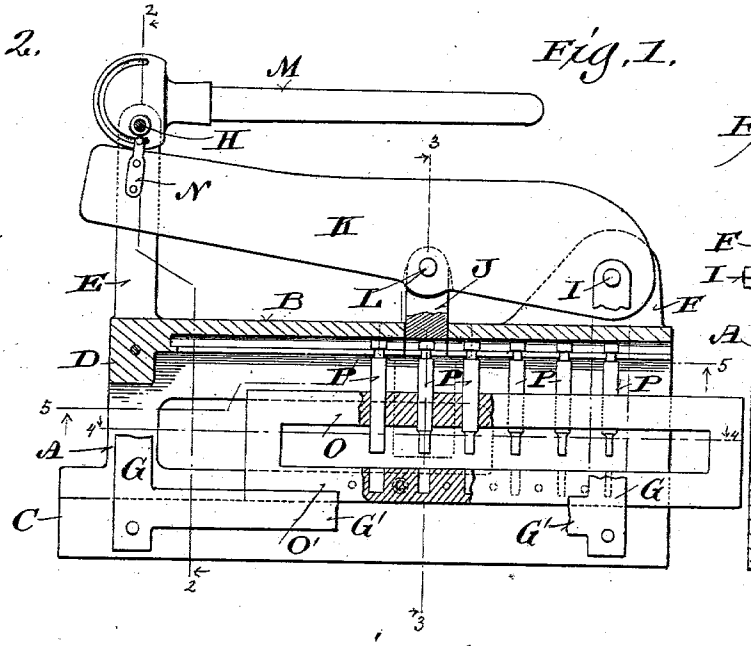


Fig. 3.

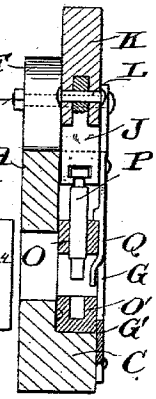
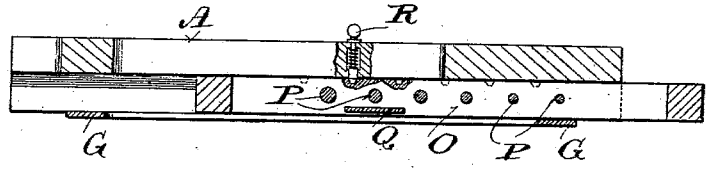


Fig. 4.



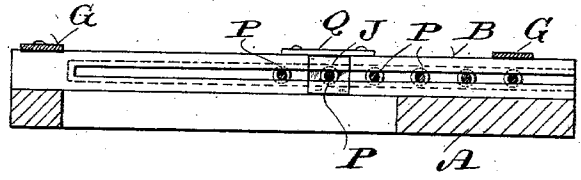


Fig. 5.

Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM A. LANGJAHR, OF PLYMOUTH, WISCONSIN.

PUNCHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 629,862, dated August 1, 1899.

Application filed May 20, 1899. Serial No. 717,604. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. LANGJAHR, a citizen of the United States, and a resident of Plymouth, in the county of Sheboygan and State of Wisconsin, have invented certain new and useful Improvements in Punching-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof

My invention has for its object to provide a simple economical punching-machine in which a gang of varied gage punches and dies are adjustable to bring either punch and die in register with a lever-controlled punch impacting and retracting device.

Therefore said invention consists in certain peculiarities of construction and combination of parts hereinafter particularly set forth with reference to the accompanying drawings and subsequently claimed.

Figure 1 of the drawings represents a side elevation of my punching-machine, partly broken away; Figs. 2 and 3, transverse sections of the same respectively indicated by lines 2 2 and 3 3 in the first figure of the series, and Figs. 4 and 5 horizontal sections respectively indicated by lines 4 4 and 5 5 in said first figure.

Referring by letter to the drawings, A represents a longitudinally-slotted elongate angular casting provided on one side with upper and lower lengthwise flanges D C, as well as a transverse forward stop-block D, the latter being a depending portion of the upper flange. The angular casting constitutes the main frame-piece of my machine and is provided at its forward end with an upper standard E and at its rear end with an upper lug F, the standard and lug serving, in conjunction with vertical metal straps G, as supports for fulcrum-pins H I of a lever mechanism hereinafter more particularly specified. The straps G are made fast to the flanges D C of a frame-piece A, and shown in one piece with said straps is a plate G′, that extends above the lower one of said frame-piece flanges.

The upper flange B of frame-piece A is hollow for the greater portion of its length and provided with a bottom slot. Midway of its length the frame-piece flange B is recessed to receive a plunger J, the lower end of which is made to match the hollow and slot of said flange. The upper end of the plunger is in the form of a round-headed tenon loosely engaging a mortise intermediate of the extremities of a lever K on fulcrum-pin I, and a pivot-pin L connects said plunger-tenon and lever. Another lever M has a rounded end eccentric on the fulcrum-pin H against the upper edge of the power end of the former lever. Hooks N, fast to lever K, engage semicircular grooves in what is practically the cam end of lever M, and the latter is hereinafter designated as the "hand-lever."

Loose on the lower flange of the main frame-piece A, inside the straps G and plate G′, is a rectangular open slide having its upper member O provided at intervals longitudinally thereof with vertical guide-apertures for a series of punches P, having annular grooves in their shanks engaged by the edges of the slot intercepting the hollow portions of the frame-piece flange B and plunger J, within which they move when the slide is adjusted. The lower member O′ of the slide is provided at intervals with die-apertures in register with the punches, and these punches and die-apertures are of corresponding varied gage. The die-apertures may be formed directly in the lower slide member O′, as herein shown, or in blocks made fast on said slide member, as may be most convenient in practice.

A stripper-plate Q is made fast to upper flange B of the frame-piece A midway of its length and is bent in under said flange, as best shown in Fig. 3.

The lower member O′ of the slide is shown provided at intervals with side depressions for the reception of a spring-bolt R, arranged in the frame-piece A of the machine, and the disposition of these depressions is such that when any one of the same is engaged by the spring-bolt a punch and die are centered under the plunger J above specified.

The parts being positioned as shown in Fig. 1, operation of hand-lever M will cause movement of lever K under pressure in the direction necessary to depress plunger J, and thereby force the punch P immediately under said plunger through material extended through the open slide under the stripper-plate Q, and upon reversal of said hand-lever

the aforesaid punch will be retracted. By adjusting the slide any one of the punches and its corresponding die is accurately centered under the plunger without any appreciable loss of time.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A punching-machine comprising an open slide, a series of varied gage-punches and corresponding dies carried by the slide, means for holding said slide in adjusted position, and a lever-controlled plunger engageable with any one of the several punch-shanks incidental to adjustment of the aforesaid slide.

2. A punching-machine comprising a main frame-piece provided with an upper hollow lengthwise flange having a longitudinal bottom slot, a lever-controlled plunger engaging a recess of said flange and having its lower end made to match the hollow and slot of same, an open slide guided on a lower flange of the main frame-piece, a series of varied gage-punches and corresponding dies carried by the slide, the punch-shanks being provided with grooves engaged by edges of the slot intercepting the hollow portions of said upper flange and plunger, and means for holding the slide in adjusted position.

3. A punching-machine comprising an open slide, a series of varied gage-punches and corresponding dies carried by the slide, means for holding said slide in adjusted position, a plunger engageable with any one of the several punches incidental to adjustment of the aforesaid slide, a lever connected intermediate of its extremities to the plunger, and a hand-lever having a cam end exertive on the power end of the former lever.

In testimony that I claim the foregoing I have hereunto set my hand, at Plymouth, in the county of Sheboygan and State of Wisconsin, in the presence of two witnesses.

WILLIAM A. LANGJAHR.

Witnesses:
H. J. ROONEY,
A. W. ROBERTSON.